

The Horse.

THE DETROIT TROTTING MEETING.

The Most Successful Ever Held in the State—Good Weather, Fast Time, and Great Crowds.

The first meeting under the banner of the American Trotting Association has been held in this city, and it was in every way a most unqualified success. The grounds had been thoroughly prepared, the track put in fine shape, and the grand stand and surroundings tastefully decorated. The meeting attracted people from all over the State, and Ohio, Illinois, Kentucky and Pennsylvania. The attendance was unexpectedly large, and of the best character. Good order was maintained, and the tricky driver held down to his work in a manner which soon convinced him that the Association meant business. Quite a number of horses lowered their records very materially, as will be seen by the summaries below. Michigan bred horses showed up well, although Belle F. was not in shape to take part in the free-for-all. Sumpter and Loretta F. are trotters, and it was well for Conde that the former was "off" or he would have compelled him to go a couple of seconds faster or lose the 2:35 purse.

One of the events of the meeting was the exhibition of Madame Marquette on her horse Woodlawn, and her race against time with her celebrated running horses, Major Banks and Evergreen, harnessed to skeleton wagon. She beat her best previous record by 1 1/2 seconds, making the mile in 1:46. It was a most exciting race, and it is safe to say such time was never before made on wheels by any driver.

First Day.

The meeting opened with the 2:35 class, in which were 11 entries, comprising the following: Colored Girl, Sumpter, Rosaline Wilkes, Grey Duke, Lynn W., Conde, Scott Newman, Problem, Anna C., Baby Mine and Valky. With so large a field it was difficult to get a good start, but Mr. Campau talked business to the drivers after false starts had been made, and sent them off on the fifth attempt. Lynn W. was the favorite with many, but the old hands were buying Conde all the same. It rather puzzled the crowd when Sumpter took the heat in 2:26 1/4, Rosaline Wilkes second, Conde fourth, and Lynn W. so far behind that it looked like a shut out. His owner, who had been backing him liberally, then drew him, as he showed lameness.

The second heat was a fight between Rosaline Wilkes, Conde and Sumpter, but the latter was not in shape to stand a hard race, his owner said, and Conde went under the wire first, Sumpter second, and Rosaline Wilkes third. Time, 2:25.

In the third heat Grey Duke was drawn. Conde went off with the lead, Sumpter close up, and Rosaline Wilkes third. The latter closed up and the three came into the stretch neck and neck. Here Sumpter broke up and Conde drew slightly ahead, crossing the score half a length ahead of the mare in 2:25 1/4.

The fourth heat was rather tame, as Conde, with the lead at the start, was never headed, and won by a full length; Rosaline second and Valky third. Time, 2:24.

SUMMARY—2:35 TROT CLASS—PURSE \$1,500.
O. A. Hickok's ch. g. Conde.....1 1 1
S. A. Browne & Co.'s ch. g. Sumpter.....2 3 4
J. B. Shockey's b. m. Rosaline Wilkes.....3 2 3
John G. Johnson's b. m. Valky.....4 5 6
Frank Bennett's b. m. Problem.....5 7 8
Portsmouth South End Stock Farm's b. m. Anna C.....6 9 10
H. Simon's ch. g. Scott Newman.....7 11 12
Abe Hosler's ch. g. Baby Mine.....8 13 14
Frank A. Lacey's b. m. Anna C.....9 15 16
W. Campbell's g. g. Grey Duke.....10 17 18
Lynn Brothers' g. g. Lynn W.....11 19 20

TIME.
Quarter. Half. Three-quarters. Mile.
First heat.....30 1:12 1:48 2:26 1/4
Second heat.....30 1:12 1:48 2:25
Third heat.....30 1:12 1:48 2:24 1/4
Fourth heat.....30 1:12 1:48 2:24

The 2:20 class had seven entries, and while the time was fast, and Tom Rogers pushed the winner somewhat, the race was never in doubt. Patron, the grand young son of Pancoat, was a sure winner. He could have knocked two seconds off his best time had he been required to do so. The following horses showed up for the first heat: Deck Wright, Patron, Pilot Boy, Eagle Bird, Naad Queen, Judge Davis and Tom Rogers. There was some rather tedious scoring, five attempts being made before a start was effected. On the sixth the word was given with Naad Queen in the lead. Patron went to the front before the quarter pole was reached, and was not headed till he had passed under the wire. The pace was hot, though, and the old campaigner Deck Wright surprised his friends by taking second place, Tom Rogers third. Time, 2:20 1/4.

For the second heat the horses went off with an excellent start, Patron taking the lead at once, with Tom Rogers and Judge Davis in close company. Rogers showed great speed, and was a good second at the finish. Time, 2:19 1/4.

The third heat was very exciting. Pat on kept the lead, although Tom Rogers forced him to making a very fast heat—2:16. The first half was only fair, 1:09 1/4, a 2:19 gait, but after reaching the half the leaders were seen to increase their speed, and came into the stretch lapped and fairly flying. The last half was trotted squarely in 1:06 1/4, the third quarter in 2:23, and the mile in 2:16. The following is the

SUMMARY—2:20 TROT CLASS—PURSE \$2,000.
Forest City Farm's b. m. Patron.....1 1 1
W. H. McCarthy's b. m. Tom Rogers.....2 2 2
Jacob Knauer's b. m. Judge Davis.....3 3 3
John E. Turner's b. m. Eagle Bird.....4 4 4
L. E. Serenian's b. m. Naad Queen.....5 5 5
W. Y. Wagner's b. m. Naad Queen.....6 6 6
A. Kaul's g. g. Pilot Boy.....7 7 7

TIME.
Quarter. Half. Three-quarters. Mile.
First heat.....30 1:09 1:45 2:16
Second heat.....30 1:09 1:45 2:16
Third heat.....30 1:09 1:45 2:16

The next race was the 2:18 pace, for which the entries were as follows: Silver Thread, Lillian S., Bennie, Woodmont, Kinsman, Charley Friel, Argyle and Tommy Lynn—Jennie Lind being drawn. It looked like anybody's race at the start. Mr. Campau had to lecture and finally fine two of the drivers, Spian and Miller being the parties honored. Bennie got off with the lead, but was soon passed by Kinsman, then Lillian S. and Argyle closed up on the leaders; Argyle and Bennie coming up

the stretch like a double team, Kinsman leading when all at once Lillian S. shot to the front like a rocket, and came under the wire first by a scant half length, Kinsman second, Bennie third and Argyle fourth. Time, 2:17 1/4.

The second heat was also exciting one, Lillian S. going off with the lead, Charley Friel second, and Kinsman and Argyle struggling for fourth. Kinsman broke up at the half, and was out of the race. Charley Friel then took the lead, with Lillian second; but Argyle suddenly came up with the leaders, passed Lillian, raced neck and neck with Friel, and won by a head, both under the whip. Time, 2:18.

The third heat was taken by Argyle after a sharp tussle with Friel, near the finish, when the latter made a spur for the lead and came near getting it. Time, 2:17 1/4.

The fourth heat was one of the best of the day. Argyle got off first, was passed by Friel, Silver Thread showing up third and Lynn fourth, the others out of the race. Silver Thread fell back at the half, leaving the three others to fight it out. On the home stretch Friel, Argyle and Lynn were abreast, and made a very close finish, Argyle winning by a neck, and Friel a neck in advance of Lynn. Time, 2:19 1/4. The following is the

SUMMARY—2:18 PACE CLASS—PURSE \$1,500.
R. M. Anderson's g. g. Argyle.....1 1 1
Lee W. Sinclair's b. m. Lillian S.....2 2 2
Samuel Key's ch. g. Charley Friel.....3 3 3
R. C. Benson's b. m. Tommy Lynn.....4 4 4
South End Stock Farm's g. g. Bennie.....5 5 5
A. K. Mann's ch. g. Kinsman.....6 6 6
F. A. Wietor's g. g. Silver Thread.....7 7 7
F. H. Hall's b. m. Naad Queen.....8 8 8
W. W. & F. H. Starkey's ch. g. Woodmont.....9 9 9

TIME.
Quarter. Half. Three-quarters. Mile.
First heat.....30 1:08 1:42 2:17 1/4
Second heat.....30 1:08 1:42 2:17 1/4
Third heat.....30 1:08 1:42 2:17 1/4
Fourth heat.....30 1:08 1:42 2:19 1/4

Second Day.

The weather was pleasant, and the attendance good, being reported at 7,000. The 2:27 class was first on the program, and the horses starting were placed as follows: Zeno, Faro, Loretta F., Amie King, Banner Boy, John R. Wise, Mikado, Lady Barefoot. They scored four times before getting the word, and went off with a fair start. Loretta F. took the lead and held it to the finish, Faro second, and Amie King third, and Zeno distanced. Time, 2:27.

The next heat was taken by Loretta F. in 2:23 1/4, after a sharp tussle with Faro on the home stretch. Faro was second, but was placed third for running.

The third heat was simply a repetition, Loretta F. winning, Amie King again second, and Lady Barefoot third. The summary was as follows:

2:27 CLASS—PURSE \$1,500.
C. C. Pond's b. m. Loretta F.....1 1 1
L. W. Sinclair's ch. m. Amie King.....2 2 2
W. H. Carter's b. m. Faro.....3 3 3
W. C. Crabb's b. m. Banner Boy.....4 4 4
Jesse Yearnase's b. m. Lady Barefoot.....5 5 5
Joe Gladden's ch. g. John R. Wise.....6 6 6
Wm. Thompson's g. g. Mikado.....7 7 7
J. H. Greenfield's b. m. Zeno.....8 8 8

TIME.
Quarter. Half. Three-quarters. Mile.
First heat.....30 1:11 1:45 2:27 1/4
Second heat.....30 1:11 1:45 2:23 1/4
Third heat.....30 1:11 1:45 2:23 1/4

The free-for-all was looked forward to with interest, but owing to the weather entries being drawn, only Arab and Charlie Hilton showed up as starters. Spian drove Hilton and Hickok was behind Arab. The race was a tame affair, Arab taking the lead in each heat, with Hilton close up all the way, and neither one doing his best. It was unfortunate that there were not a couple of other fast ones to force them to make better time, as they are known to be capable of it. The following is a summary of the race:

FREE-FOR-ALL—PURSE \$2,500.
O. A. Hickok's b. m. Arab.....1 1 1
Geo. D. Sisson's b. m. Charlie Hilton.....2 2 2

TIME.
Quarter. Half. Three-quarters. Mile.
First heat.....30 1:12 1:47 2:22
Second heat.....30 1:12 1:47 2:19 1/4
Third heat.....30 1:12 1:47 2:19

The 2:24 pace came next, and for it the following horses started: Little Ida, Frank Champ, Wilcox, Joe L., Dr. West, Cleveland and Duplex. Champ was a favorite, but not a strong one. After a little trouble seeing a good start was made, with Little Ida, Joe L., Wilcox and Duplex abreast and slightly in the lead. Wilcox pulled to the front, Ida second and Champ third. The latter was very rank, breaking up when pushed, although showing fine bursts of speed, once reaching the head of the procession, but falling back to second place, Wilcox winning in 2:17 1/4, and Ida third.

The next heat was a surprise. Wilcox was leading by a length at the first turn, with Dr. West and Champ close together in second and third place, when the latter broke up again and lost all chance for the heat. Then Joe L., who was fifth, opened out an extra link, passed the leaders one after another till Wilcox was reached, when a sharp race down the homestretch ensued which ended in Joe L. taking the heat by a scant head. Time, 2:15.

When the third heat was called Wilcox was drawn. Joe L. took it in easy style, with West second and Ida third. Time, 2:22 1/4.

Joe L. was now a strong favorite, he was regarded a sure winner. It was getting dark before a start was made in the fourth heat. West was a little ahead of Joe L. at the start, and when rounding the first turn his driver pulled him directly in front of Joe L., whose driver had to pull him up to avoid a collision. This broke the horse up so he lost his place and was out of the race before he could be got down to work again. West held the lead to the finish, with Duplex second and Ida third. The judges held a consultation and declared West distanced for foul driving, giving Duplex the heat. Time 2:23. The other heats had to be postponed till next day.

Third Day.

The track had been wet by a light shower, which had cleared off before the unfinished 2:24 pace was called. Joe L. was the favorite. Duplex had the pole, as the last heat had been awarded him on a foul, and he surprised everybody by capturing the next one in 2:17 1/4.

Duplex and Joe L. having two heats each, and none of the others in the racing having one, they were left to fight it out together. It was a great race, Duplex having the advantage most of the time, but coming into the stretch Joe closed up, and it was neck and neck to the pole, Duplex under the whip, but Joe had a little extra speed to

spare, and was half a length ahead at the finish in 2:19 1/4. The following is the summary:

2:24 PACE—PURSE \$1,500.
Joe L., b. m.....1 1 1 5 9 1
Duplex, b. m.....2 2 2 3 8 7
Frank Champ, b. m.....3 3 3 4 6 4
Little Ida, b. m.....4 4 4 5 3 2
Wilcox, b. m.....5 5 5 6 1 2
Dr. West, b. m.....6 6 6 7 2 0

Quarter. Half. Three-quarters. Finsh.
First heat.....35 1:08 1:43 2:17 1/4
Second heat.....35 1:08 1:43 2:15
Third heat.....35 1:08 1:43 2:15
Fourth heat.....35 1:08 1:43 2:15
Fifth heat.....35 1:08 1:43 2:15
Sixth heat.....35 1:08 1:43 2:15

The 2:22 class had six starters, with Butterscotch the favorite, and Echo Chief selling next. It required six heats to settle the race, and then Lady M. took the next two straight, it was anybody's race till the last heat was finished. Echo Chief, whose owner thought him a sure winner, after being second in the first heat pulled up so lame that he was not in the race afterwards. The following is the summary:

2:22 PACE—PURSE \$2,000.
Lady M., b. m. W. F. Cowan.....1 1 1 1 1 1
Butterscotch, b. m. M. E. McHenry.....2 2 2 2 2 2
Oval, b. m. John Kelly.....3 3 3 3 3 3
Echo Chief, ch. h. H. Hainsboro.....4 4 4 4 4 4
Orphan Boy, b. m. J. W. Vogie.....5 5 5 5 5 5
Voucher, b. m. O. A. Hickok.....6 6 6 6 6 6

Quarter. Half. Three-quarters. Finsh.
First heat.....35 1:07 1:44 2:22
Second heat.....35 1:07 1:44 2:20
Third heat.....35 1:07 1:44 2:20
Fourth heat.....35 1:07 1:44 2:20
Fifth heat.....35 1:07 1:44 2:20
Sixth heat.....35 1:07 1:44 2:20

The special purse of \$3,000 for a match race between the pacer Johnson to wagon and Harry Wilkes to sulky, was an interesting exhibition and nothing more. It was apparent that neither horse did his best, and if they had Johnson would have won. The pools sold in Johnson's favor right up to the fourth heat, but perhaps that had nothing to do with the termination of the race. Johnson took the first two heats in 2:16 and 2:14 1/4; then Wilkes the next three in 2:19, 2:18 1/4, 2:21 1/4. The reports show that Johnson would have stood a better show of winning had the driver not had such a strong grip on the lines. The 2:25 race had to be postponed owing to darkness coming on.

A NUMBER of importers of horses appeared before Secretary Maynard on the 11th of July, at the Treasury Department, and asked for a ruling in the case of horses imported for sale for breeding purposes, the recent decision of Judge Gresham that such horses could not come in free putting the importers in a bad position. Secretary Maynard stated there would be no change in the course of the Department and that importers of animals for breeding purposes may bring in their consignments duty free, even though they propose to sell them at once and before breeding, provided they import for breeding purposes. It is said, however, that the decision of Judge Gresham will shut out the thousands of Canadian horses which are annually imported at all border points. An importation was stopped at Port Huron last week, and duties to the amount of \$4,500 collected. The owner, a Mr. White, paid them under protest. Under the decision of the Treasury Department the duties will have to be refunded.

Horse Gossip.

The trotting stallion Jerome Turner will not appear on the track this season. The tendon strained at Terre Haute, Ind., some weeks ago, keeps him very lame.

SOME one gave cyanide of potassium to a large number of horses owned by the 29 Avenue Street Car Co., of New York, and three have died. It is reported that 125 were poisoned, and more of them are likely to die.

PATRON is the trotter of the year. He is liable to knock out all previous stallion records before the season closes. He is by Pancoat, dam Beatrice by Caylor. He is not only fast but a very handsome horse, and his gait is simply perfection.

This trotting horse, J. Q., 2:17 1/4, was sold by J. H. Temple, of New York, on Thursday last, to Peter Pollard, of Baltimore. The price is said to be \$10,000. J. Q. was entered in the 2:18 race here, and will hereafter be handled by Spian.

GLEN Miller, the trotting stallion which died suddenly in Jefferson Park, Peoria, Ill., on the 17th inst., was killed by giving him a drink of ice water after a race. He had a record of 2:18, was sold by White Line, dam by Alexander's Abdallah.

THE DWYER Brothers, of Brooklyn, who own Hallowed, regarded Kingston as the only horse likely to give him trouble in a number of the stakes in which he is entered. So they quietly bought Kingston, and they are not particular now if he does pull in some of the big stakes.

GLANDERS must be very prevalent in Illinois. During the past week reports from various parts of that State show that some 30 head were killed which were suffering from the disease. Seven were killed at De Witt by orders of the State Veterinarian, and 12 at Clinton by orders of President Pearson, of the Live Stock Board.

THE OWNER of Troubadour, Sam Brown, of Pittsburg, is willing to match his horse against "Lucky" Baldwin's Volante. Mr. Baldwin also wants a match. But Troubadour has sore feet and wants a soft track, while Volante likes a hard one. Hence it is likely the match will fall through. Troubadour's victory over the Bard has made Mr. Brown very enthusiastic, but he is not putting up his money until he gets conditions which will give him a chance to get it back, and he knows he never would on a hard track.

BETWEEN the heats in the 2:22 class on Thursday, Mr. S. A. Browne, of Kalamazoo, brought out his two-year-old stallion Bell Boy, to give him a fast mile. He is a handsome horse, and one of the most promising young stallions in the country. His record, got this year, is 2:33 1/4. He had made Mr. Browne very enthusiastic, but he is not putting up his money until he gets conditions which will give him a chance to get it back, and he knows he never would on a hard track.

THE RECORD of cures accomplished by Hood's Sarsaparilla can never be completely written. The peculiar curative powers of Hood's Sarsaparilla are successful when everything else has failed. If your blood is impure, your digestion out of order, try Hood's Sarsaparilla.

The Farm.

A Sheep Destroyer.

Growing on the western plains of America is a pretty looking kind of grass, resembling oats, and which is called, popularly, weather grass or needle grass—botanically, *Stipa spartea*. What may be its special sphere of usefulness to man, or in the economy of nature, granting that it had such a sphere, is hardly worth considering in the light of its evil works.

Looked at casually, while in its growing state, it might be mistaken for immature or bastard oats, although a moment's inspection would reveal its true character. The seed, particularly, would serve to emphasize its unlikeliness to its useful cousin, and it is this seed which, as a seemingly insignificant but really potent agent of destruction, claims our attention.

The seed in general conformation, but not otherwise, is like the oak. Its base is tipped with a point as sharp and hard as that of a pin. Almost hiding this tip, and extending upward to nearly half the length of the seed, is a soft, silky, hair-like growth. The remainder of the seed, which has a total length of about three-quarters of an inch, is bare, smooth, and flinty. A minute depression, made by the unfolding of the edges of the case, runs the entire length of the seed.

From the upper end of the seed runs a long awn and beard, varying in length from four to seven inches. This awn is a simple and beautiful piece of mechanism, designed apparently for the sole purpose of enabling the seed to sow itself. It is tightly twisted, screw-like, for two-thirds of its length, and then turns abruptly into a right angle, the remaining one-third being untwisted. They who are acquainted with the so-called animated oats or the wild oats will be familiar with the action of the twisted awn under the influence of wet or dry weather. The awn unlooses or tightens its twist according as it comes under the influence of wet or dry conditions, and the untwisted, right-angled end remaining quiescent enables the seed to writhe and turn and burrow deeper and deeper into the earth.

This application of its mechanical powers to the proper end of saving its life is both beautiful and pleasing, but, unfortunately, those powers being mechanical act with equal vigor to an improper end. Caught in the seemingly impenetrable wool of the sheep, and there subjected to the influence of alternate moisture and dryness, the awns do their work, and incredible as it may seem, propel the seed so far as to cause the needle to penetrate the hide of the animal. The awns break off, and the needle penetrates the vital parts of the sheep, causing painful death. The harmless-looking, silky growth on the needle, tending backward from the point as it does, acts as a barb to prevent any retrograde movement of the intruding needle.

The points, too, not only enter the body of the sheep in this way, but also stick in the nostrils, nose and lips where, however, they do less harm than when eaten and swallowed into the stomach, in which event death must follow.

SHEEPMEN guard against loss from this cause by frequent examination of the sheep during the period when *Stipa spartea* is ripe, and by burning the pasture in June, at which time the deadly grass has just commenced its growth. Prevention in this instance, as in others, is better than cure, for it is no easy matter to examine every sheep of a large herd so carefully that all the needles can be detected and withdrawn.

—Farming World, Edinburgh, Scotland.

Clover Hay.

F. D. Curtis, in the *N. Y. Tribune* says: "The farmer with plenty of clover hay ought to be happy. It is the best food the farm can produce for horses, cattle or sheep; and horses are also fond of it. When cut in blossom and cured right it is better for sheep than timothy hay and grain. It is so well balanced in flesh-forming and fat-making properties that it keeps animals just right. And it also has the same effect on the bowels which oil meal has, and gives to the coat the same bright and healthy appearance. Timothy, on the contrary, is constipating, and when fed to sheep freely will make them constipated and cause the stretchers. I had a few valuable sheep which were kept until very old, as they were worth more for breeders than to slaughter, and one winter would have lost them but for clover hay. Mine was all gone and they began to pine and run down, getting weak; but a new lot of clover hay revived them, and they went through and raised their lambs. Sheep will not stand too much grain, as it makes them feverish, and when they get in this condition their wool will start loose and grain does not seem to do them much good. My neighbors who raise the best lambs depend on clover hay more than on all other kinds of food. It also makes the best manure. There need be no waste, as the breeding mare and colts will eat all of the stems. A good plan is to feed this in a rack in the yard while they are out to stir around. Rough days' feed it in the stables."

The Poultry Yard.

Duck Farming in China.

One afternoon we went on an interesting expedition up the river, and then turned aside into one of many creeks to the village of Fan-tse, and thence onward in search of one of the great duck-hatching establishments, where multitudinous eggs are artificially hatched. The first we came to was a small hut, the boatman told us of another further on, so we landed and walked along narrow ridges between large flooded fields, in which lotus and water chestnuts are grown for the sake of their edible roots. Both are nice when cooked, but the collection of these in this deep mud must be truly detestable for the poor women engaged in it. Passing by amazing herds of old shells, (for which even the Chinese seem to have as yet found no use), we reached the hatching house, in which many thousands of eggs are being gradually warmed in great baskets filled up with heated chaff, and placed on shelves of very open basket work, which are arranged in tiers all round the walls, while on the ground are placed earthenware stoves full of burning charcoal. Here the eggs are kept for a whole day and night, the position of the baskets with reference to the stoves being continually changed by attendants, who reserve their apparel for use in a cooler atmosphere! After this preliminary heating the eggs are removed to other baskets in another heated room, to which they are dexterously carried in cloths, each containing about fifty eggs. No one but a real-hand Chinaman could carry such a burden without a breakage! Here the eggs remain for about a fortnight, each egg being frequently moved from place to place to equalize their share of heating. After they are taken to a third room where they are spread over wide shelves and covered with sheets of thick, warm cotton; at the end of another fortnight hundreds of little ducklings simultaneously break their shells, and by evening perhaps a couple of thousand fluffy little beauties are launched into life, and are forthwith fed with rice water.

Duck farmers (who know precisely when each great hatching is due), are in attendance to buy so many hundreds of these pretty infants, which they at once carry off to their respective farms, where there are already an immense number of ducks and

Agricultural Items.

A WRITER in the *Rural New Yorker* wants to know if it is not quite as easy to become just a little bigoted upon agricultural subjects as upon religion."

THE Kansas Legislature made an appropriation of \$13,000 at its last session to establish a silk culture station. Buildings have been erected and the work is well under way.

ONE pound of London purple to 100 pounds of land plaster applied to potatoes to kill the bugs proved too strong for the foliage, killing the tender tops of the vines and blackening the leaves wherever applied to them.

THIS milk received at a Canadian cheese factory was suspected of being adulterated and an expert sent for who came unexpectedly and examined the quality of the milk. The factory had between 70 and 80 patrons, and less than ten per cent sent in honest, unadulterated milk. All the directors except one had their names on the black list.

THE New England Farmer says: "About the most uncleanly thing we know of for a farmer to do is, after coming in from work at night and unharnessing his horses, to pick up a milk pail and go to milking before washing his hands. Too many men are guilty of this trick, and it is hard to see how they can drink with a relish milk that has washed off the horse-dirt, harness-grease and sweat of their own hands."

W. H. YEOMANS, in the *N. E. Farmer*, says that as the ravages of striped bugs on cucumber and squash vines had been very destructive, he tried a remedy that had been recommended in the papers of planting bush beans about the hills, and it has appeared to prove successful. The beans grow rapidly and do little or no injury to the vines which make their way among them and in case of cucumber vines seem to do all the better, as the young cucumbers clamber over the beans while the fruit sets and hides itself among the leaves.

F. A. GULLEY, of the Mississippi Agricultural College, says the most profitable branch of the college farming is buying, grazing and feeding cattle. In addition to the profits, the system most rapidly brings up the worn-out land of which the college farm was originally composed. Cotton seed is fed quite extensively, from 2,000 to 4,000 bushels of seed every year since 1881. Prof. Gulley also says: "We find that alternating cultivated crops with such crops as peas, clover and other forage crops the land improves in fertility and productivity; also land that has been pastured three to five years may then be cultivated again and the crop increased three or four fold without applying fertilizers."

A CORRESPONDENT of the *N. E. Farmer* says: "When any one of us finds a new or easier way of doing anything than what we had been accustomed to, or has unusual success in any particular branch of our work it is our duty, as well as our privilege, to let our brother farmers know about it, that they may also have the benefit. We often see a farmer or gardener who has great success in his line of business draw himself in like a turtle into its shell, when asked how he does some particular thing, or how he raises so good a crop of some special kind, and answer in some shallow or profound way that sounds well, but gives no information. It was a bad spirit that was shown by one of our prominent market-gardeners when, having talked a half day at a meeting of the State Board to a large company of farmers, he said to a friend: 'There, I have said a good deal to them, but I have not told them much.'"

A Fearful Leap.

Into the abyss of poverty, over the precipice of shortsightedness is taken by thousands, who might become wealthy if they availed themselves of the opportunities. Those who write to Hallett & Co., Portland, Maine, will be informed, free, how they can make from \$5 to \$25 a day and upwards. Some have made over \$50 a day. You can do the work and live at home wherever you are located. Both sexes; all ages. All is new. You are started free. Capital not needed. Now is the time. Better not delay. Every worker can secure a snug little fortune.

The Poultry Yard.

Duck Farming in China.

One afternoon we went on an interesting expedition up the river, and then turned aside into one of many creeks to the village of Fan-tse, and thence onward in search of one of the great duck-hatching establishments, where multitudinous eggs are artificially hatched. The first we came to was a small hut, the boatman told us of another further on, so we landed and walked along narrow ridges between large flooded fields, in which lotus and water chestnuts are grown for the sake of their edible roots. Both are nice when cooked, but the collection of these in this deep mud must be truly detestable for the poor women engaged in it. Passing by amazing herds of old shells, (for which even the Chinese seem to have as yet found no use), we reached the hatching house, in which many thousands of eggs are being gradually warmed in great baskets filled up with heated chaff, and placed on shelves of very open basket work, which are arranged in tiers all round the walls, while on the ground are placed earthenware stoves full of burning charcoal. Here the eggs are kept for a whole day and night, the position of the baskets with reference to the stoves being continually changed by attendants, who reserve their apparel for use in a cooler atmosphere! After this preliminary heating the eggs are removed to other baskets in another heated room, to which they are dexterously carried in cloths, each containing about fifty eggs. No one but a real-hand Chinaman could carry such a burden without a breakage! Here the eggs remain for about a fortnight, each egg being frequently moved from place to place to equalize their share of heating. After they are taken to a third room where they are spread over wide shelves and covered with sheets of thick, warm cotton; at the end of another fortnight hundreds of little ducklings simultaneously break their shells, and by evening perhaps a couple of thousand fluffy little beauties are launched into life, and are forthwith fed with rice water.

Duck farmers (who know precisely when each great hatching is due), are in attendance to buy so many hundreds of these pretty infants, which they at once carry off to their respective farms, where there are already an immense number of ducks and

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geese of different ages; all in separate lots. The geese, by the way, are not hatched artificially, owing to the thickness of the shells, consequently they are not so very numerous as ducks. Still flocks numbering 600 to 800 are reared and are provided with wattle shelves on which to roost, as damp ground is considered injurious to the young birds. A large goose market

Horticultural.

Experiments with Insecticides.

Prof. Riley, in his Bulletin No. 11 of the Department of Entomology, Washington, remarks that the list of remedies against destructive insects, already very numerous, is increasing every day, and that the reputation of most of them rests merely on hearsay evidence. It has, therefore, become important to submit them to accurate test, and with this view several reliable experimenters have been employed to undertake the work. Among others the bulletin reports the results of more than eighty experiments made by F. M. Webster, of Lafayette, Indiana. In order to bring the results of these trials compactly before the view of such of our readers as are now commencing with insecticides, we give the following statements greatly condensed from those furnished in the bulletin. Among those asserted remedies which have signally failed in every instance, was the use of ice-water for the imported cabbage worm; salt water and salt-peter and water were equally useless. Carbolic acid and water, one part of acid to 100 of water, injured the young leaves but not the worms. Buckwheat flour, so strongly recommended by some parties, did no harm to insects. Ammonia, three teaspoonfuls to a gallon of water, powdered alum, copperas and water, black pepper, tar water, tomato water, and some other recommended remedies, produced no apparent harm to the worms; but pyrethrum powder (kept several months closely corked in a jar), killed at least three-fourths of all to which it was applied. The kerosene emulsion, made of equal parts of kerosene, molasses and water, diluted with three times its volume, destroyed 80 per cent of all the worms. The emulsion should be weaker for young plants.

The following remedies had no effect on fall web worms: Potassium sulphide, copperas water—an ounce to a quart, ammonia water, carbolic water, tomato infusion and carbolic acid; but copperas water twice as strong as the preceding, produced a satisfactory result.

The Colorado potato-beetle was not injured in several experiments with Wolf's soap, nor with ammonia water; but with carbolic acid of lime the beetles either deserted the dusted plants or were found dead. Thomas Bennett, of Trenton, N. J., tried a number of remedies, largely of vegetable decotions, but the remedy which appeared to give the most decided results was a powder made of gas tar and lime, composed of half an ounce of tar to one pound of lime. He had never seen potato plants so thickly covered with the beetles as those when he commenced. In three days there were no bugs there, and none were seen until eight days afterwards, when only five were discovered. Another sprinkling of the tar lime repelled them for the season. No Paris green was used. Mr. Bennett recommends this remedy specially to persons who are afraid to use Paris green on potatoes, a "dead shot made of one-pint of gas-tar to one peck of lime (1 to 16)," being an effective remedy against potato bugs. This powder proved good for every description of plant louse.

The bitter vegetable decoctions do not appear to have given very satisfactory results. They were made of tomato leaves, mandrake, quassia, datura, tansy and allants.

Mr. Bennett tried various remedies to prevent the cut-worm from destroying cabbage plants after being set out. Soft soap and tobacco water were employed as a dip, but proved too strong and injured the plants. The application was modified. Two ounces of tobacco stems were infused in a quart of water, and the stems and lower parts of the leaves immersed. A cut-worm was placed in the ground near each plant, and a week later no plants were cut. The owner of a cabbage field near by, had to keep boys constantly at work searching for and killing the grubs. Other remedies were partially successful. We have never found any means quite so useful in protecting newly-set cabbage plants from the cut-worm as the mechanical appliance of rolling a small piece of burdock leaf around the stem, two inches below ground and one inch above, as they are set out. This work is rapidly performed by one accustomed to it, and there is something in the rough and bitter nature of the leaf that has always proved a perfect protection. There may be other plants which would answer as well. The green leaf rots off after the danger has passed. A modification is often recommended in the papers, of using paper instead of the burdock leaf, but it is neither so effective nor so well adapted to the purpose.

Training Raspberry Vines.

The common method of growing raspberries is by simply planting them in hedge rows and in letting the canes dispose of themselves as they will. Sometimes, stakes driven at either end of the hedge support a narrow board or pole, which serves to prop up the drooping canes, but often even this limited aid is not given, and the long canes drag upon the ground, to the intense annoyance of the raspberry pickers and to the serious detriment of the yielding quality of the berries. Further, it is almost impossible in this case to keep the rows free from an undergrowth of obnoxious weeds, thistles, quack grass, and the like.

Successful gardeners, however, have begun to adopt of late, the plan of training the vines. This is almost the universal practice in England, where the exposing of as much of the surface of the vine to the sun as possible is quite necessary. The plan usually tried is as follows:

The rows are planted at about six feet apart in the rows, and the plants in the two rows opposite each other. A portion of the canes (not more than three) are selected to form the pillar on the outside of the rows, and cut back to a uniform and desired height. The remaining canes are bent from each side and tied together in the center, thus to form the arch or tunnel as you may call it, and the whole when finished will present a finished and unique appearance. The advantages of the above mode of culture are apparent, a large and economic surface to sun, light and heat, thereby producing finer fruit and in greater abundance than can be effected by any other system; a better chance for the management of the young canes, as being more easily separated, and for cutting out the old wood, which should be done immediately after the fruiting season is over. The ground may

be cultivated at any time previous to getting the canes again into position.

Raspberries can also be successfully trained on a trellis, and the difference in fruitfulness between carefully trained and regularly pruned raspberry vines and those left to grow at haphazard must be seen to be fully appreciated.

Mulching in Drouth.

M. Milton, a market gardener of wide experience, says in the *Country Gentleman*: "Seldom a summer season passes without a drouth. It may be of only a few weeks' duration, or as sometimes is the case, it may extend through the months of July, August and September. Trees and shrubs planted in the spring are at this season passing a critical period; the roots and shoots have got well started, but are in a succulent and tender condition, and are easily affected by any change arising from a lack of moisture. The leaves are in a condition to rapidly evaporate moisture, the continual hot and dry atmosphere greatly increasing this evaporation. The rootlets are taxed to their utmost to maintain this rapid passing off of the moisture, and unless there is a sufficient supply at hand, they soon give out, and the organs of the tree or shrub become so weakened that it has to succumb for lack of nourishment. The surface of the soil becomes very hot if fully exposed to the sun, and creates a rapid evaporation of the moisture it contains."

It is imperatively necessary, therefore, to help check this rapid evaporation by mulching with some material of sufficient looseness to admit of water and air, but still sufficiently dense to prevent the sun's rays from drying and heating the soil. Before applying the mulch, it is advisable to stir the surface of the soil to admit the rains freely. On the top of this then apply the mulch, spreading it out beyond the area occupied by the roots, for unless carried far enough from the stem of the tree to cover the rootlets forming at the ends of the old roots, it does not do very much good. We often see trees having a thick covering of mulch placed close around the stem of the tree, doing little, if any good, as the roots requiring to be benefited have extended several feet beyond where the mulch is spread.

Mulching may not only be a check upon the evaporation of moisture from the soil, but also an aid in supplying food for newly set trees by using some material containing a supply of plant food. Nothing is much better for this purpose than the rough litter from the manure pile. It contains considerable of the elements which are necessary to build up plant life, and every shower carries into the soil these elements in a condition suitable at once for the plant's requirements. Spent hops, as obtained from the breweries, make an excellent mulch. I have used it largely for years, for this purpose. I one year mulched a patch of late cabbage with about three inches of hops, and although a severe drouth set in during September, I had a most excellent crop of the largest cabbages I ever raised. I also value it very largely for potting material. When thoroughly decayed it is open in texture, and for such plants as geraniums, fuchsias and heliotropes, makes one of the best soils I know of. From one brewery I got from 100 to 100 loads of this material every year, and consider it of double the value of barn-yard manure, bulk for bulk.

Any coarse material, however, may be used as a mulch, and rather than allow the trees to suffer, use sawdust, if nothing else can be had, although I am always averse to putting undecayed sawdust upon any kind of soil, especially soils of a sour nature, where the drainage is imperfect, as it is apt to make the soil more inert, and raise a crop of fungus.

He mulches with straw lightly in the fore part of winter. Last fall he sowed oats thinly in his patch, and they were knee high and more when the frost came. The oats, of course, were killed, and the first snow settled them into a perfect mulch. He sows about one bushel to the acre for this purpose. There is no danger of getting foul weed seeds, as is often the case in mulching with straw. He also mulches his blackberries and raspberries, to retain moisture in summer. He sets out strawberries where he raised potatoes the year before, setting a new patch every year, and does not think of getting more than one or two crops from one bed. It is easier to plant a new bed than to keep an old one clean. Strawberries will stand any quantity of fertility. He grows for the market and can make money at from four to five cents a quart whole sale. A hundred bushels is an average crop, although 200 and 300 are grown.

Small Fruits for the Home Garden.

B. F. Albazh, in an essay read before an Ohio institute, gave directions for the best way to plant half an acre, eight by ten rods, for the family. This plot of ground, after putting it in perfect order, he would plant eight feet from the outside with Concord, Clinton and Lady grapevines. The first year he would cut back to three eyes, and, after they had started the next spring, rub off all but one, the next year to two eyes, and the third year to three, which he would let grow. He then would put up a trellis of wire. One of the three shoals he would train vertically up on the wires, the other two respectively to the right and left in a fan shape, and keep them trained and trimmed in this way. He advised also planting the Moore's early, which is a large grape, and earlier than the Concord. He also likes the Pocklington.

Eight feet from the grapevines he would plant two rows of blackberry, eight feet apart in the rows, and the plants in the two rows opposite each other. A portion of the canes (not more than three) are selected to form the pillar on the outside of the rows, and cut back to a uniform and desired height. The remaining canes are bent from each side and tied together in the center, thus to form the arch or tunnel as you may call it, and the whole when finished will present a finished and unique appearance. The advantages of the above mode of culture are apparent, a large and economic surface to sun, light and heat, thereby producing finer fruit and in greater abundance than can be effected by any other system; a better chance for the management of the young canes, as being more easily separated, and for cutting out the old wood, which should be done immediately after the fruiting season is over. The ground may

berries should be practiced upon raspberries, and continued throughout the season. He would then plant at the same distance from the raspberries two rows of currants and gooseberries. The old wood should be kept cut, and white hellebore, mixed with middlings or flour, should be dusted over the bushes, taking care to reach the under leaves near the roots, where depredations of the currant worm commence. By a little watching and care this enemy can be exterminated. He would in no case use Paris green.

In the remainder of the patch he would plant potatoes and strawberries, alternately. He invariably plants strawberries in the spring, and would advise the planting of a row of Wilson, three rows of Crescent and one of Sharpless, or other good staminate variety, to fertilize the Crescent. He has many other good varieties, but these are enough for an ordinary grower. He plants in rows several feet apart, and cultivates with a horse. In no case plant the Manchester, though it is a great bearer. It is almost sure to rust, and will infect the other varieties.

The Length of Roots.

While many of our leading fruit-growers are manuring their trees, within a few feet of the centre stem only, others are endeavoring to prove that an orchard, to obtain full benefit from manuring, mulching, or cultivation, must be treated broadcast, that is, in plain speaking, the whole of the ground must be manured and cultivated. In some points we agree with them, in others we do not; many have the idea that the roots of trees extend no farther from the centre of the stem than what the height of the branches are, but such ideas are, of course, chimerical. Others have taken the trouble to show us that the roots generally extend much further than the entire height of the trees, and endeavor to impress upon us the necessity of manuring the whole land surrounding the fruit trees, if we wish to become successful growers. Apple trees, planted twenty feet apart, have been found to interlace roots eight years after planting. Again, a well known cultivator has found the roots of a twelve year old peach tree growing in rich soil fifty feet from the tree.

We are well aware that fruit trees, when planted in rich soil and left to their own resources, will quickly push roots of a very strong nature many feet from the stem; but as a rule, such roots are utterly destitute of fibre, which is far from conducive to successful fruit culture. We have heard of a large peach orchard being planted in America on very rich deep soil; notwithstanding this, it was frequently top-dressed with farmyard manure, and consequently trees grew well, and made strong, sappy shoots, which were unable to withstand the rigors of an American winter, even if the trees had been hardy enough; fruit—growth could never produce profitable fruit—whereas, if planted on a thin and not too rich soil, and the roots kept within bounds, they would no doubt have been a complete success.

Some of the best fruit producing peach trees we ever saw were growing in concrete borders, not more than four feet wide, and in a depth of two feet of soil. Therefore, we cannot see why good fruit cannot be grown equally as well when the roots are kept within bounds as when they are allowed to ramble "far from home." It is a certainty that the cost of manuring and cultivating the whole land, when the roots are allowed to go where they like, would be double the price of manuring within, say, five or six feet of the stem. Imagine the roots of a peach tree fifty feet from the stem; what an enormous quantity of water it would take to water the whole of the roots. Or, again, take the grape vine. Not many of our noted grape growers would like their vines to have roots away, they scarce know where. No; they generally like to keep them under control. We have seen roots of the vine, outside the prepared border, growing in a bad subsoil, but were utterly devoid of fibrous roots. Therefore we come to the conclusion that to become successful in fruit growing the roots must be, to a certain extent, kept within bounds, and encouraged as near to the surface as possible, which tends much towards the ripening of the wood.

Here, however, arises the question of root pruning: "why do we not root prune?" is often asked; it may, however, be answered in a very few words—we root prune for the purpose of checking over-luxuriant growth, and to encourage fibrous roots, with a view to promote fertility. But many go about it in the wrong way. The author of "Extensive System of Pruning and Training," when referring to the subject, writes thus: "When a groom wishes to reduce a young over-fed colt to subjection, he resorts to the common-sense plan of reducing its diet and giving it plenty of work. The gardener copies the groom in the first instance, but not in the second. He reduces the diet by cutting off a portion of the roots; but he, to a great extent, defeats his purpose by the same time reducing the need for them. He cuts off the roots, but he cuts off the branches as well. The right way would be to curtail the roots and extend the branches. This reduces the supplies, but leaves the demand unimpaired, and we effect our object at once." Therefore, in our opinion, more good is done to fruit trees by keeping their roots within bounds, and then manure can be applied, with a knowledge that you are doing good, than by allowing them to ramble "far from home."—*Horticultural Times*.

Oil of Peppermint.

Menhaden, from which the true oil of peppermint is derived, was first introduced, or noticed in Herfordshire, England, and given the name of peppermint, by Ray in his *Historia Plantarum*, published in 1704. Its commercial history dates from about the year 1750, when its cultivation was commenced in a very small way at Mitcham, in Surrey, England. Fifty years later the amount under cultivation was about 100 acres, but the growers having had, as yet, no distilleries built, still continued to convey the plant to London for the distillation of the oil. The industry in England reached its zenith about 1850—just 100 years after its introduction—when the area cultivated was about 500 acres, but owing to successful American competition, it was reduced during the next 15 years to about 250 acres.

Distillation of the oil of peppermint was first accomplished in America by Mr. Burnett in Wayne County, New York, in the year 1816, who collected on the banks of a little stream sufficient wild plants to produce some 40 pounds of the oil. In the year 1835, the industry was established in Michigan in St. Joseph county, on White Pigeon Prairie, about two miles north of a village of that name, a distillery being erected the following year. Up to this time and for ten years later, the distilling apparatus was very crude, being the same as had been used in England, with but slight modification, consisting of a copper kettle in which the plants were placed, immersed in water in which direct heat was applied by a furnace underneath, a condensing room of the usual character being connected with the kettle by a pipe from its apex.

The year 1846 marks a new and important era in the evolution of a more perfect system of distillation and the apparatus therefor, viz: That of distillation by the diffusion of steam through the plants, which were now for the first time placed in large wooden vats, to which steam was conveyed by a long pipe entering at the bottom, the kettle which had been used heretofore as the still, being now used for the generation of the steam. Distillation was now effected in a much more perfect manner. Furthermore, distillation could now be conducted with much greater rapidity and economy. This system of steam distillation originated in St. Joseph county, Michigan, and was soon introduced into New York.

The proper time for distillation is when the plants are in full bloom. In the case of the "New crop" that is, the crop which has been set the preceding spring, this usually occurs in September. There are about 15,000 tons of plants produced annually in America, the average yield of oil being about one third of one per cent from green plants. There are now in America about 175 small distilleries where the natural oil is distilled. The average annual production for the last 10 years has been about 100,000 pounds of oil. The average yield per acre of the crop, for the first and second years, is about 11 pounds. This would show an area under cultivation of about 9,000 acres.

Fritzsche's test for oil of peppermint: Mix thoroughly about one pint of snow or finely crushed ice, with a like quantity of finely powdered salt and put this into any convenient jar, holding open container, into this place a cork test tube, not quite filled with oil. After 10 or 15 minutes the oil, if pure, will have become cloudy, translucent, thick or of a jelly-like consistency. Then add four or five small crystals of pure menthol, re-cork and shake thoroughly. Replace the tube into the freezing mixture and after a short time, the pure oil will present a solid mass of crystals. If the oil remains limpid, or partially so, it has either been adulterated or had its menthol extracted and should be unhesitatingly rejected.—*J. P. Canby*.

Raspberries for Market and Home Use.

At a late meeting of the Ontario Fruit Growers' Association Mr. A. M. Smith, of St. Catharines, said there was a difference in cultivation for market and home purposes. For market they should be planted in rows about six feet apart and three feet apart in the row so as to have plenty of room to cultivate them. The cultivating should be done with a horse cultivator, the same as corn, and all the suckers kept down, with the exception of four or five new canes. When they got up about two feet and a half the new canes should be pinched back, which would make them stocky and branch out.

Mr. Morton, Wingham, said he cultivated the raspberry as an amateur or garden grower. He planted them in rows, and hills in the rows, because he found it desirable to tie the canes to stakes in winter on account of the snow, which was very apt to break them down. Ordinary red he planted about six feet apart, and Shaffer's Colossal, which was his preference for home use, about seven feet apart, it being a taller growing variety and requiring more room. He regarded as weeds all shoots not growing within a radius of six inches from the centre of the hill. He kept the ground perfectly clean and friable to within a distance of about two inches with a wheel hoe, and made use of ashes and salt as manure. He was afraid, however, that the poor show of fruit he had this season was owing to a heavy coat of ashes he had put on. He did not think raspberries required much manure when once planted if the soil was as good as it ought to be.

FLORICULTURAL.

The fuchsia should have a shady place, and while it does not relish wet feet, likes plenty of water. If it is allowed to wilt it is very apt to drop its leaves.

The entire stock of the new rose, the Puritan, has been bought by a firm of florists at Pittsburgh for \$18,000. It is a hybrid perpetual, large, white, beautiful in bud or blossom, and said to be a vigorous grower, free from mildew, and a continuous bloomer.

CHINESE primroses for midwinter blooming ought to be started now. Sow the seed in a large pot, on fine light soil, and do not cover with soil, but with fine moss. Sprinkle this with water carefully and cover with a pane of glass. Keep in a shady place. If necessary to water the seed sprinkle the moss. When the plants are up transplant into small pots.

The *Horticultural Times* says: "If you want a brilliant bed, with but little trouble and expense, you should fill it with verbena. We have no more profuse bloomer. It begins when it is a wee bit of a thing, hardly worth calling a plant, and as it enlarges, it gives more and more flowers, until by July, each plant, if properly trained, will cover two or three feet of ground, and be a perfect mass of flowers. The most showy sorts are the scarlets, but the most pleasing are the rose-colored ones, with flowers of the softest and most delicate shades imaginable. A few white ones should be used to lighten the effect of the colored varieties. There are some fine blues, but they never should be used with the scarlets, crimsons, or pinks, as they are of that peculiar shade of blue which will not harmonize with either of those colors. They can be worked in quite effectively,

however, with the white kinds. To train the verbena properly is a very easy thing to do, but it does not often get done. It should have each branch pegged to the ground in such a manner as to make the plant cover the soil with a carpet of foliage, which becomes a background against which the flowers can display themselves to admirable advantage. The flowers should be cut off as soon as they begin to fade. If they are allowed to produce seed, you will soon find that your supply of blossoms is giving out. As the branches root at each joint, when the plant touches the ground, it is a very easy matter to raise young plants enough from one old one, to fill a large bed. I would not advise anyone to attempt to raise plants from seed. But few of the seeds germinate under ordinary conditions, and seedlings are generally inferior in all ways to the plants propagated by the florists from choice sorts."

A successful grower of the heliotrope gives his method as follows: "In starting seeds or slips I use a box ten inches long, six inches wide and six inches deep, with a sliding glass cover, easily admitting air, when necessary. After repeated experiments as to earth best suited to their wants, I shall unhesitatingly pronounce in favor of that taken from an old pile of wood and thoroughly sifted, as it never bakes, a thing which the heliotrope will never submit cheerfully. The plant likes moist heat at the roots and fibres; this is supplied by filling the saucers of the flower-pots with hot water. If any lover of this delightful plant will secure perfect drainage, and then remember that it is a very thirsty plant, he can scarcely fail in its culture. Then in removing plants to the garden, which I always do in summer, I am careful to have a generous supply of the wood-pile dirt in the cavity prepared for the reception of the heliotrope. I had one in the garden last summer fully three feet high, loaded with delicious bloom, and admired by all who saw it."

The sweet-scented verbena (*Aloysia Citrifolia*) is a well-known and general favorite among window gardeners—holding this position on account of the sweet perfume it has. Being a deciduous shrub it should receive somewhat similar treatment to the fuchsias. Stored away for the winter, giving no water from the end of October until March, when the plants should be pruned in hand, and re-planted in fibrous loam, leaf mould, and sand; water at first but sparingly, until the plant is growing freely, and then water copiously. In order to make the plant bushy and dwarf, each shoot should be pinched when about four inches long; this will induce them to throw out two more, which should also be stopped in the same manner, and so on, according as the plant grows. By doing this you will always keep your plants neat and tidy. Towards the end of September the leaves begin to drop; then it is advisable to place the plants out of doors for a few weeks, in order to get well-ripened before being stored away for the winter. Cuttings of well-ripened wood, from the prunings in March, will root freely if inserted in sandy soil; or young shoots taken in July, and put in sandy soil under a bell glass, will strike readily.

Horticultural Notes.

A dilute kerosene emulsion is reported to be a better remedy against aphides than tobacco infusion.

The Mariboro raspberry is said to be fast driving out all other varieties in the fruit-producing regions of New York. It sells at from one and a half to two cents per quart more than other sorts on account of its size and flavor.

The refusal of fruit-pickers to work on the Fourth of July caused the loss of about 16,000 quarts of raspberries in the southern part of Ulster County, N. Y., alone. The owners of the raspberry farms are said to entertain very unpatriotic sentiments, and censure the signers of the Declaration of Independence for signing in raspberry time.

The Rome Beauty, an apple originating in Lawrence County, Ohio, and now being extensively planted in Kentucky, Tennessee, Kansas and Missouri, is said to be very like the Ben Davis, in being very beautiful in appearance but not coming up to expectations in the matter of quality and keeping. It sells well, however, and is therefore being largely planted.

At the Apple Congress held at the Cheshwick Horticultural Gardens, in October, 1885, there were 2,020 separate names given to the different exhibits. Of these 1,545 were presumed to be distinct varieties. The inference is that horticultural nomenclature in England needs revision and correction in that country as much as in this.

P. CURRY, of Keokuk, Ia., claims the championship for the biggest yield of strawberries. He has a plantation of Crescent, fertilized by Captain Jack, which is 10 by 13 rods, and from which he picked in 1886 5,000 quarts, and in 1887, 5,100 quarts. The secret of the big yield is deep plowing and heavy manuring and mulching.

JUDGE MILLER, of Missouri, mourns the loss of his grapes by rot this year. He was not at home when the grapes should have been sacked, or the coppers removed applied, and when he returned the rot was so far advanced that the fruit could not be saved. Therefore he reminds us that these preventive means must be used in season or it is no use to attempt a cure.

A. W. CHERVEN, of the N. E. Farmer, says: "Any farmer who has ever been successful with peaches should keep planting a few trees annually for home use. If a crop is secured once in three or four years it will usually pay for all the trouble of setting and tending a few trees." If this advice is followed for New England, how much better it must be for Michigan, where the chance of a crop is much greater.

The "Grand Lobelia" (*Lobelia grandis*) is said to be the most effective insect enemy of the potato bug. A hungry lobelia thinks nothing of eating 100 eggs of the potato beetle for a square meal. The farmer ought to know his friends. This insect is less than half an inch in length, with brilliant dark blue wing covers, yellow-brown head, thorax and legs, and its greatest delicacy is a fat, young and tender potato bug larva.

LAND which will raise good garden crops, or potatoes, cabbages and corn, will give good crops of currants, provided proper manuring, clean cultivation, and sufficient pruning are

given. The cuttings of the same season's growth may be taken off late in autumn and buried till early spring; or set out the same autumn, burying most of their length in compactly pressed earth, and covering them with a two-inch mulch of manure. Well treated, they should begin to bear fair crops the third year.

Apianian.

Apianian Notes.

RENDER your beeswax in tin pans; iron vessels spoil the wax by making it dark colored. A new tin pan is best.

The *Canadian Bee Journal* does not advocate artificial swarming, believing it is better not to weaken the colonies, even if it becomes necessary to add a few extra supers for extracting.

A MUSKOKA correspondent of the *Bee Journal* says mice destroyed four colonies for him but that in one colony the bees stung the intruder to death and glued it firmly to the bottom of the hive.

The severe drouths prevalent in most localities greatly shortened the basswood and white clover season this year and the supply of such honey promises to be light. The prospects are good for a full crop of fall honey.

The *American Bee Journal* says: "Bees sometimes desert after they are hived, and when they issue from their new quarters take French leave, and do not cluster. If a frame of uncapped brood is given them when hived, they seldom, if ever, abscond. There are many reasons why bees leave after hiving; the hive may be hot from standing in the sun before the bees were put into it; or it may have had too little ventilation. Churn them ever so wisely, and they will not accept a hive made loosely from kerosene or barn-yard smells. A swarm put into a clean, sweet, cool hive, and set in the shade, will show its appreciation of it by going to work with an energy that is surprising."

BEES will swarm any time when there is a continuous flow of nectar, and a bee-keeper should always have empty hives in readiness to receive them. Italian bees swarm frequently before building queen-cells, or apparently making any previous preparation for the event. The exact time when a swarm is going to emerge, cannot be determined beforehand with any degree of certainty. If during the swarming season few bees leave the hive while the occupants of adjacent ones are busily engaged in gathering honey, a swarm may reasonably be expected. During sultry weather a swarm may issue as early as seven in the morning, but the greater part of them come forth from ten in the morning to three in the afternoon. Occasionally an after-swarm may issue as late as five in the evening, but an old queen is seldom guilty of such indiscretion.

The editor of the *Canadian Bee Journal* has made certain observations on the actions of bees which have swarmed and betaken themselves to flight. He says the person who desires to find where they alight should keep in front of them to see whether they seek the woods or pass over, and adds: "You can easily tell whether it is the intention of a swarm to go through or stop when they come to a bit of timber land. If they intend going through, or over the bush they will, when they get within a few rods of it, roll over and over, rising all the time until they are as high as the tops of the trees, drawing themselves into a much smaller compass as they perform this rolling, rising motion. If they intend clustering in the woods you will observe them flying backwards and forwards parallel to the bush several times, gradually entering the woods. By carefully watching their motions you can decide what they intend doing."

NEW ADVERTISEMENTS.

BULL'S SARSAPARILLA.

Dyspepsia.

Variable appetite; faint, gnawing feeling at pit of the stomach; flatulence; belching; heartburn; indigestion; constipation; or, in the mouth, low spirits, general prostration. BULL'S SARSAPARILLA by cleansing and purifying the blood, tones up the digestive organs, and relieves all the above.

Rheumatism.

Caused by impurities in the blood, usually affecting the joints, and resulting in swellings, enlarged joints, abscesses, etc. BULL'S SARSAPARILLA acts as a diuretic, causing the impurities to be excreted by the kidneys, and relieves the pains.

Scrofula.

Caused by impurities in the blood, usually affecting the glands, and resulting in swellings, enlarged glands, abscesses, etc. BULL'S SARSAPARILLA acts as a diuretic, causing the impurities to be excreted by the kidneys, and relieves the pains.

The Liver.

Caused by impurities in the blood, usually affecting the liver, and resulting in swellings, enlarged liver, abscesses, etc. BULL'S SARSAPARILLA acts as a diuretic, causing the impurities to be excreted by the kidneys, and relieves the pains.

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Day Express	9:10 a.m.	6:45 p.m.	9:10 a.m.
Salt & River Accom.	10:00 p.m.	7:30 a.m.	10:00 p.m.
Evening Express	8:00 p.m.	5:30 a.m.	8:00 p.m.
Special Express	11:00 p.m.	8:00 a.m.	11:00 p.m.
GRAND RAPIDS TRAINS.			
Day Express	9:10 a.m.	6:45 p.m.	9:10 a.m.
Grand Rapids Express	10:00 p.m.	7:30 a.m.	10:00 p.m.
Night Express	11:00 p.m.	8:00 a.m.	11:00 p.m.
SAGINAW AND BAY CITY TRAINS.			
Bay City and Saginaw	10:30 a.m.	7:30 a.m.	10:30 a.m.
MacIsaac & Mackay Ex.	10:40 p.m.	7:40 a.m.	10:40 p.m.
Night Express	11:00 p.m.	8:00 a.m.	11:00 p.m.
Alpena Express	10:30 a.m.	7:30 a.m.	10:30 a.m.
TOLDO TRAINS.			
Southern Express	8:30 a.m.	5:30 a.m.	8:30 a.m.
St. L., Cin., Cleve. & Col.	8:45 p.m.	5:45 p.m.	8:45 p.m.
Grosse Ile Accom.	10:00 p.m.	7:00 a.m.	10:00 p.m.
Cincinnati Express	10:30 p.m.	7:30 a.m.	10:30 p.m.

44s. against 35s. 4d. the corresponding

ss than at this time last year.

Percent of the area sown to soybeans, 1980

was shown.

great many injuries caused by careless Jos

ph Mansen commands the expedition.

1. The first part of the document is a list of names and titles, including "The Hon. Mr. Justice" and "The Hon. Mr. Justice".

1990

THE HEIRESS OF CALEDON HEIGHTS.

An Autobiography.

[Copyrighted 1887.]

My reply was that I had never made, for just then a carriage was swiftly up the walk and we all rose to catch a glimpse of the occupants. But we only caught sight of two ladies inside before it passed us. For a moment after, we stood looking at each other in silence. I had seen the same thing too many times to know what it meant, for hardly a week passed that some one did not visit the pavilion intent upon adopting some of our

scrub the steps as little Paul does; I be good oh! so good! I will never disay you, indeed I will not!"

Mr. Hart's tears flowed at this passionate appeal of mine, but she could not grant request now—it was too late.

You have ever been an obedient and child, Dorcas," she answered, softly, and I know you will not fail to make


"No, sir," I answered. I did not like being questioned by this strange fellow with bold, black eyes and ready tongue.

"The other one, then?" directing his glance at Miss Armund, who, when she heard his name, scowled savagely.

"No, sir," I replied again. I have no

for the wrong done her, but it will
ce. Carry out my instructions and
I do no more; but I wish them carried
mind you," and her voice grew stern.
u understand me, Lena?"

rs. Clayton had turned from the window
Miss Armund's first words, and re-
ned quiet and attentive to what she was
ng. Her face betrayed no expression
that of extreme indifference; but at



"WHY DON'T YOU ANSWER ME?"

led him out into the garden, and
 a pleasant hour together.

[illegible]

Catching Tigers.

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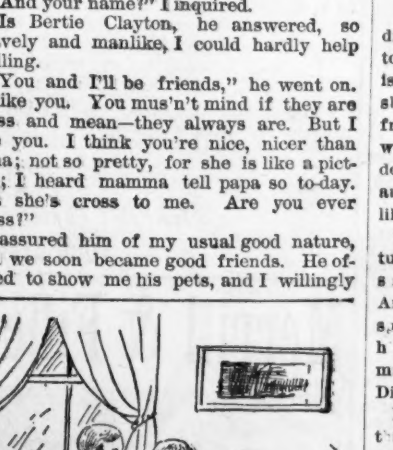
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[illegible]

sation in the struggle had probably been of ten minutes' duration, when suddenly the bull made one desperate lunge, broke the motionless but terrible embrace, hurled the bear from his head, and backed away probably ten paces. The bear lifted his huge form on his haunches and stood ready for the next assault. The herd of cattle had by this time gathered in from the plain and

his eyes were torn from their sockets. The charge was equally disastrous to the bear, he being ripped completely open, and he sank to the ground, writhing in his agony. The indomitable courage of the bull here prevailed. Blinded and crippled as he was, he made but a slight pause after his fourth assault, and then dashed wildly at his foe again. The grizzly's roar now seemed to be one of terror. With a last frantic effort he sought to make his escape, scrambling and staggering through the dust. But it was useless. His great strength was gone. The bull plunked his horns again and again into the huge form of the dying brute as he lay stretched helpless in the

"What salary would you expect while learning?"

"Oh, I would not demand a large salary at first, but I would try, oh, so hard, to learn rapidly."

"You never tried other work, did you, you?"

"As such as plastering, piloting on a steamboat, train dispatching, lion-taming, surveying, book-keeping, piano-tuning, pugilism, searching for the North Pole, singing bass in a minstrel company, catching elephants for the circus, braking on a passenger train, acting as the foreman of a grand jury, breaking molts, dealing fair, grinding scissors, juggling off the Brooklyn Bridge, selling light-

and, and there was a sizzling obnoxious smell provided, as these chickens were being eaten, with feathers. The little fellow picked down with a reproachful eye at the chicken who so illly provided with feathery garb, and he protested finally came. "Go 'n tell me 'ma to dress you, and don't be goin' around wifout no clothes on," said Old Mrs. Gaggert to her daughter, Alvira, who was about to make her way into society while she dressed the hearty old man.

"No, ma, Alvira, and you'll make no mistake. At the first place, don't eat potatoes, nor turnips, nor anything of that kind with your wife; use a spoon; and don't soper you'r brad ad the dish gray on the meat platter, as we kin see some gray on your plate and so it will show; and don't pour your coffee out into the sasser, no matter how hot it is; blow it

On the way to the store, he says, "I'm strongest for ths long way"
— George Eliot.

(It takes the first thirty years of a young man's life to find out that it isn't the man who is the shiniest hat who draws the biggest check.

Do. Do you believe that chestnuts keep off eczematism, Hinks?" "Yes," replied the doctor. "I always carry a come paper in my pocket."

"This world has outlived its passion," says Ella Wheeler Wilcox. Evidently Ella never seen a base ball nine takine at the bat.

An aerolite weighing two tons fell in Indiana the other day and a small boy who was holding potatoes yelled with shrill excitement, "Muffed!"

Minister (making a call)—And do you say your mamma tells you to Flossie?
Flossie (emphatically)—I guess I do, and does papa.

"People who are always in high spirits on wear out," says a physician. It may be,

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